

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
8 January 2004 (08.01.2004)

PCT

(10) International Publication Number  
**WO 2004/003830 A1**

(51) International Patent Classification<sup>7</sup>: **G06K 7/10,**  
G07F 7/06

(21) International Application Number:  
PCT/NO2003/000212

(22) International Filing Date: 25 June 2003 (25.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
20023090 26 June 2002 (26.06.2002) NO

(71) Applicant (for all designated States except US): **TOMRA  
SYSTEMS ASA** [NO/NO]; Drengsrudhagen 2, N-1372  
Asker (NO).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SIVERTSEN,**

Ronald [NO/NO]; Vabråten 50, N-1372 Asker (NO).  
**CARLIN, Mats** [NO/NO]; Vallerveien 152E, N-1346  
Gjettum (NO). **GRENNBERG FISMEN, Britta**  
[NO/NO]; Gaustadveien 15B, N-0372 Oslo (NO). **JO-  
HANSEN, Ib-Rune** [NO/NO]; Svensenga 174, N-0882  
Oslo (NO).

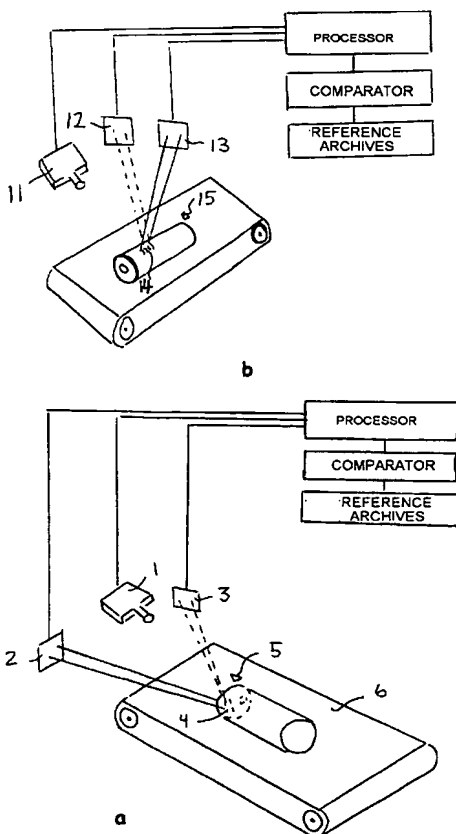
(74) Agent: **LANGAN, Hans**; Zacco Norway As, P.O. Box  
765, Sentrum, N-0106 Oslo (NO).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,  
SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG,  
US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

(54) Title: DEVICE FOR RECOGNISING CONTAINERS



(57) Abstract: A device for recognising a container by means of a marking provided on its surface, comprising a camera and light emission means (1, 2, 3) arranged for imaging the marking (4) on the container (5). The means is connected to a processor adapted for recognition, based on a camera-recorded image of the marking, of distinctive features related to the container. To ensure that the image has the quality required for recognition of the container, the means consists of one camera (1) and two light sources (2, 3), the said light sources being positioned in such manner, either on the same or on each side of the camera, that light emitted from the respective light sources falls in from a different direction relative to the marking, thereby allowing the camera to take two images of the marking using light emitted successively from the respective light source. Alternatively, the means may consist of two cameras and one light source, the cameras being positioned in such manner, either on the same or on each side of the light source, that the optical axis of the respective camera falls in from a different direction relative to the marking, so that the cameras can take two images of the marking simultaneously. In yet another alternative, just one camera and one light source are used, wherein the camera is pointed towards an assembly of mirror faces which in pairs are positioned relative to one another in such manner that the camera is able simultaneously to take two mirror images from different directions in the mirror faces adjacent to the optical axis of the camera.



Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

— before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*